

# Recent Advances in Science in Western Australia



## Earth Sciences

- Akai J, Chiba A, Konishi H, Komatsu M & Matsubara S (1997) New occurrences of non-classical pyroboles formed during ocean-floor and regional metamorphism - estimated *pt* conditions of formation. *European Journal of Mineralogy* 9: 1237-1255.
- Anand R R, Phang C, Wildman J E & Lintern M J (1998) Genesis of some calcretes in the Southern Yilgarn Craton. *Australian Journal of Earth Sciences* 45: 179-182.
- Arnold T N & Oldham C E (1997) Trace-element contamination of a shallow wetland in Western Australia. *Marine & Freshwater Research* 48: 531-539.
- Bloem E J M, Dalstra H J, Ridley J R & Groves D I (1997) Granitoid diapirism during protracted tectonism in an Archaean granitoid-greenstone belt, Yilgarn Block, Western Australia [Review]. *Precambrian Research* 85: 147-171.
- Callaghan J (1997) The South Pacific and southeast Indian Ocean tropical cyclone season 1995-96. *Australian Meteorological Magazine* 46: 325-339.
- Champion D C & Sheraton J W (1997) Geochemistry and Nd isotope systematics of Archaean granites of the Eastern Goldfields, Yilgarn Craton, Australia - implications for crustal growth processes. *Precambrian Research* 83: 109-132.
- Clarke C J, Mauger G W, Bell R W & Hobbs R J (1998) Computer modelling of the effect of revegetation strategies on salinity in the western wheatbelt of Western Australia - 1 - The impact of revegetation strategies. *Australian Journal of Soil Research* 36: 109-129.
- Clements K W, Ahammad H & Qiang Y (1996) New mining and mineral-processing projects in Western Australia - effects of employment and the macro-economy. *Resources Policy* 22: 293-346.
- Cotter K L (1997) Neoproterozoic microfossils from the Officer Basin, Western Australia. *Alcheringa* 21: 247-270.
- Cudahy T J & Ramanaidou E R (1997) Measurement of the hematite/goethite ratio using field visible and near-infrared reflectance spectrometry in channel iron deposits, Western Australia. *Australian Journal of Earth Sciences* 44: 411-420.
- Davids C, Wijbrans J R & White S H (1997) Ar-40/Ar-39 laserprobe ages of metamorphic hornblendes from the Coongan Belt, Pilbara, Western Australia. *Precambrian Research* 83: 221-242.
- Denicola A & Randolph M F (1997) The plugging behaviour of driven and jacked piles in sand. *Geotechnique* 47: 841-856.
- Gale S J, Drysdale R N, Scherrer N C & Fischer M J (1997) The lost city of north-west Queensland - a test of the model of giant grikeland development in semi-arid karst. *Australian Geographer* 28: 107-115.
- George A D & Powell C M (1997) Paleokarst in an Upper Devonian reef complex of the Canning Basin, Western Australia. *Journal of Sedimentary Research Section A-Sedimentary Petrology & Processes* 67: 935-944.
- George A D, Playford P E, Powell C M & Tomatora P M (1997) Lithofacies and sequence development on an Upper Devonian mixed carbonate-siliciclastic fore-reef slope, Canning Basin, Western Australia. *Sedimentology* 44: 843-867.
- Giblin A & Mazzucchelli R (1997) Groundwater geochemistry in exploration - an investigation in the Black Flag District, Western Australia. *Australian Journal of Earth Sciences* 44: 433-443.
- Haig D W, Smith M & Apthorpe M C (1997) Middle Eocene Foraminifera from the type Giralia calcarenite, Gascoyne Platform, southern Carnarvon Basin, Western Australia. *Alcheringa* 21: 229-245.
- Hamilton N T M & Collins L B (1998) Placer formation in a Holocene barrier system, southwestern Australia. *Journal of Coastal Research* 14: 240-255.
- Harris D H M, Williams P R, Newtonsmith J & Fitzgerald L G (1997) Tectonic fabric development and mineralisation of the Duketon greenstone belt, Western Australia. *Australian Journal of Earth Sciences* 44: 503-508.
- Hartley B M, Wall B, Munslowdavies L, Toussaint L F, Hirschberg K J, Terry K W & Shepherd M (1998) The establishment of a radioactive waste disposal facility in Western Australia for low level waste. *Applied Radiation & Isotopes* 49: 259-264.
- Hill S M, Taylor G & McQueen K G (1998) Genesis of some calcretes in the Southern Yilgarn Craton. *Australian Journal of Earth Sciences* 45: 177-178.
- Holyland P W & Ojala V J (1997) Computer-aided structural targeting in mineral exploration - two- and three-dimensional stress mapping. *Australian Journal of Earth Sciences* 44: 421-432.
- Hutchinson D E & Toussaint L F (1998) Near-surface disposal of concentrated norm wastes. *Applied Radiation & Isotopes* 49: 265-271.
- Jones R (1997) Geostrategy and geotactics - recent naval port developments at Garden Island, Western Australia. *Marine Policy* 21: 363-376.
- Kent A J R & McCuaig T C (1997) Disturbed Ar-40-Ar-39 systematics in hydrothermal biotite and hornblende at the Scotia gold mine, Western Australia - evidence for argon loss associated with post-mineralisation fluid movement. *Geochimica et Cosmochimica Acta* 61: 4655-4669.
- Kitney M & Maxwell P (1996) Supporting major new nickel developments - can Western Australia do it again. *Resources Policy* 22: 347-358.
- Macphail M K (1997) Late neogene climates in Australia - fossil pollen- and spore-based estimates in retrospect and prospect. *Australian Journal of Botany* 45: 425-464.
- Mann A W (1998) Oxidised gold deposits - relationships between oxidation and relative position of the water-table. *Australian Journal of Earth Sciences* 45: 97-108.
- Masselink G, Hegge B J & Pattiaratchi C B (1997) Beach cusp morphodynamics. *Earth Surface Processes & Landforms* 22: 1139 ff.
- Morris P A & Witt W K (1997) Geochemistry and tectonic setting of two contrasting Archaean felsic volcanic associations in the eastern goldfields, Western Australia. *Precambrian Research* 83: 83-107.

- Mroczkowski M & Kuczera G (1997) Sensitivity of simulated stream salinity to soil chloride profile. *Mathematics & Computers in Simulation* 43: 359-366.
- Mueller A G (1997) The Nevoria gold skarn deposit in Archean iron-formation, Southern Cross greenstone belt, Western Australia .1. Tectonic setting, petrography and classification. *Economic Geology & the Bulletin of the Society of Economic Geologists* 92: 181-209.
- Myers J S (1997) Preface - Archaean geology of the Eastern Goldfields of Western Australia - regional overview. *Precambrian Research* 83: 1-10.
- Nagase T, Akizuki M, Onoda M & Sato M (1997) Chrysoprase from Warrawanda, Western Australia. *Neues Jahrbuch fur Mineralogie-Monatshefte* 289-300.
- Naldrett A J (1997) Key factors in the genesis of Norilsk, Sudbury, Jinchuan, Voiseys Bay and other world-class Ni-Cu-pge deposits - implications for exploration. *Australian Journal of Earth Sciences* 44: 283-315.
- Nelson D R (1997) Evolution of the Archaean granite-greenstone terranes of the Eastern Goldfields, Western Australia - Shrimp U-Pb zircon constraints. *Precambrian Research* 83: 57-81.
- Nemchin A A & Pidgeon R T (1997) Evolution of the Darling Range batholith, Yilgarn Craton, Western Australia - a Shrimp zircon study. *Journal of Petrology* 38: 625-649.
- Okada H & Wells P (1997) Late Quaternary nanofossil indicators of climate change in two deep-sea cores associated with the Leeuwin Current off Western Australia. *Palaeogeography Palaeoclimatology Palaeoecology* 131: 413-432.
- Pattiaratchi C, Hegge B, Gould J & Eliot I (1997) Impact of sea-breeze activity on nearshore and foreshore processes in southwestern Australia. *Continental Shelf Research* 17: 1539-1560.
- Petrobian M C, Grano S R, Sobieraj S & Ralston J (1997) Recovery mechanisms for pentlandite, and mgo-bearing gangue minerals in nickel ores from Western Australia. *Minerals Engineering* 10: 775-786.
- Quilty P G, Shafik S, Jenkins C J & Keene J B (1997) An Early Cainozoic (Paleocene) foraminiferal fauna with fabiania from offshore eastern Australia. *Alcheringa* 21: 299-315.
- Robinson B H, Chiarucci A, Brooks R R, Petit D, Kirkman J H, Gregg P E H & Dedominicis V (1997) The nickel hyperaccumulator plant *Alyssum bertolonii* as a potential agent for phytoremediation and phytomining of nickel. *Journal of Geochemical Exploration* 59: 75-86.
- Robinson J S & Sivapalan M (1997) Temporal scales and hydrological regimes - implications for flood frequency scaling. *Water Resources Research* 33: 2981-2999.
- Rowins S M, Groves D I, McNaughton N J, Palmer M R & Eldridge C S (1997) A reinterpretation of the role of granitoids in the genesis of neoproterozoic gold mineralization in the Telfer Dome, Western Australia. *Economic Geology & the Bulletin of the Society of Economic Geologists* 92: 133-160.
- Seitz H M & Keays R R (1997) Platinum group element segregation and mineralization in a noritic ring complex formed from Proterozoic siliceous high magnesium basalt magmas in the Vestfold Hills, Antarctica. *Journal of Petrology* 38: 703-725.
- Shen J W, Yu C M & Bao H M (1997) A Late-Devonian (Famennian) renalcis-epiphyton reef at Zhaijiang, Guilin, South China. *Facies* 37: 195-209.
- Simonson B M, Davies D, Wallace M, Reeves S & Hassler S W (1998) Iridium anomaly but no shocked quartz from late Archean microkrystite layer - oceanic impact ejecta. *Geology* 26: 195-198.
- Siverson M (1997) Sharks from the mid-cretaceous Gearle siltstone, Southern Carnarvon Basin, Western Australia. *Journal of Vertebrate Paleontology* 17: 453-465.
- Smithies R H & Bagas L (1997) High pressure amphibolite-granulite facies metamorphism in the paleoproterozoic Rudall Complex, central Western Australia. *Precambrian Research* 83: 243-265.
- Smithies R H & Witt W K (1997) Distinct basement terranes identified from granite geochemistry in late Archaean granite-greenstones, Yilgarn Craton, Western Australia. *Precambrian Research* 83: 185-201.
- Summers R N & Pech J D (1997) Nutrient and metal content of water, sediment and soils amended with bauxite residue in the catchment of the Peel Inlet and Harvey Estuary, Western Australia. *Agriculture Ecosystems & Environment* 64: 219-232.
- Swager C P (1997) Tectono-stratigraphy of late Archaean greenstone terranes in the southern Eastern Goldfields, Western Australia. *Precambrian Research* 83: 11-42.
- Swager C P & Nelson D R (1997) Extensional emplacement of a high-grade granite gneiss complex into low-grade greenstones, Eastern Goldfields, Yilgarn Craton, Western Australia. *Precambrian Research* 83: 203-219.
- Sylvester P J & Ghaderi M (1997) Trace element analysis of scheelite by excimer laser ablation inductively coupled plasma mass spectrometry (ela-icp-ms) using a synthetic silicate glass standard. *Chemical Geology* 141: 49-65.
- Tompkins L A, Eisenlohr B, Groves D I & Raetz M (1997) Temporal changes in mineralization style at the Cadjebut Mississippi Valley-type deposit, Lennard Shelf, WA. *Economic Geology & the Bulletin of the Society of Economic Geologists* 92: 843-862.
- Trendall A F, Nelson D R, Delaeter J R & Hassler S W (1998) Precise Zircon U-Pb Ages From the Marra Mamba Iron Formation and Wittenoom. *Australian Journal of Earth Sciences* 45: 137-142.
- Wende R, Nanson G C & Price D M (1997) Aeolian and fluvial evidence for Late Quaternary environmental change in the East Kimberley of Western Australia. *Australian Journal of Earth Sciences* 44: 519-526.
- Wilson T J, Grunow A M & Hanson R E (1997) Gondwana assembly - the view from Southern Africa and East Gondwana. *Journal of Geodynamics* 23: 263-286.
- Wintle A G & Murray A S (1997) The relationship between quartz thermoluminescence, photo-transferred thermoluminescence, and optically stimulated luminescence. *Radiation Measurements* 27: 611-624.
- Witt W K & Davy R (1997) Geology and geochemistry of Archaean granites in the Kalgoorlie region of the Western Goldfields, Western Australia - a syn-collisional tectonic setting. *Precambrian Research* 83: 133-183.
- Witt W K, Knight J T & Mikucki E J (1997) A synmetamorphic lateral fluid flow model for gold mineralization in the Archean southern Kalgoorlie and Norseman Terranes, Western Australia. *Economic Geology & the Bulletin of the Society of Economic Geologists* 92: 407-437.
- Woodhead J D & Hergt J M (1997) Application of the double spike technique to Pb-isotope geochronology. *Chemical Geology* 138: 311-321.
- Woodhead J D, Hergt J M & Simonson B M (1998) Isotopic dating of an archean bolide impact horizon, Hamersley Basin, Western Australia. *Geology* 26: 47-50.



Wright W J (1997) Tropical-extratropical cloudbands and Australian rainfall. 1. climatology. *International Journal of Climatology* 17: 807-829.

## Life Sciences

- Abensperg-Traun M & Steven D (1997) Latitudinal gradients in the species richness of Australian termites (Isoptera). *Australian Journal of Ecology* 22: 471-476.
- Agboma P C, Jones M G K, Peltonensainio P, Rita H & Pehu E (1997) Exogenous glycinebetaine enhances grain yield of maize, sorghum and wheat grown under two supplementary watering regimes. *Journal of Agronomy & Crop Science-Zeitschrift für Acker und Pflanzenbau* 178: 29-37.
- Agboma P C, Sinclair T R, Jokinen K, Peltonensainio P & Pehu E (1997) An evaluation of the effect of exogenous glycinebetaine on the growth and yield of soybean - timing of application, watering regimes and cultivars. *Field Crops Research* 54: 51-64.
- Akilan K, Marshall J K, Morgan A L, Farrell R C C & Bell D T (1997) Restoration of catchment water balance - responses of clonal river red gum (*Eucalyptus camaldulensis*) to waterlogging. *Restoration Ecology* 5: 101-108.
- Amaoka K, Arai M & Gomon M F (1997) A new species of *Arnoglossus* (Pleuronectiformes, Bothidae) from the south-western coast of Australia. *Ichthyological Research* 44: 131-136.
- Anderson P K (1997) Shark Bay dugongs in summer .1. Lek mating. *Behaviour* 134: 433-462.
- Andrew J & Ward R D (1997) Allozyme variation in the marine fanworm *Sabella spallanzanii* - comparison of native European and introduced Australian populations. *Marine Ecology-Progress Series* 152: 131-143.
- Arnold T N & Oldham C E (1997) Trace-element contamination of a shallow wetland in Western Australia. *Marine & Freshwater Research* 48: 531-539.
- Austin A D, Gibson G A P & Harvey M S (1998) Synopsis of Australian *Calymmochilus masi* (hymenoptera, eupelmidae), description of a new Western Australian species associated with a pseudoscorpion, and review of pseudoscorpion parasites. *Journal of Natural History* 32: 329-350.
- Battaglia M & Sands P (1997) Modelling site productivity of *Eucalyptus globulus* in response to climatic and site factors. *Australian Journal of Plant Physiology* 24: 831-850.
- Bennett S J (1997) Genetic variation between and within two populations of *Trifolium glomeratum* (cluster clover) in Western Australia. *Australian Journal of Agricultural Research* 48: 969-976.
- Berra T M (1997) Some 20<sup>th</sup> century fish discoveries. *Environmental Biology of Fishes* 50: 1-12.
- Berry P F & Playford P E (1997) Biology of modern *Fragum erugatum* (Mollusca Bivalvia, Cardiidae) in relation to deposition of the Hamelin coquina, Shark Bay, Western Australia. *Marine & Freshwater Research* 48: 415-420.
- Bolland M D A (1997) Comparative phosphorus requirement of canola and wheat. *Journal of Plant Nutrition* 20: 813-829.
- Bougher N L & Young A M (1997) Hygrosporaceae of Western Australia. *Mycotaxon* 63: 25-35.
- Bougher N L (1997) Three new sequestate basidiomycetes from Western Australia. *Mycotaxon* 63: 37-48.
- Bowman D M J S (1997) Observations on the demography of the Australian boab (*Adansonia gibbosa*) in the north-west of the Northern Territory, Australia. *Australian Journal of Botany* 45: 893-904.
- Brailovsky H (1997) First record of the Tribe Hydarini in Australia with the description of a new species of *Hydarella bergroth* (Hemiptera, Coreidae). *Australian Journal of Entomology* 36: 225-228.
- Bray R A & Cribb T H (1997) Lepocreadiid (Digenea) species from members of the marine teleost family Cheilodactylidae from south-western Australia, including four new genera and five new species. *Systematic Parasitology* 37: 27-45.
- Brennan J P & Fox P N (1998) Impact of cimmyt varieties on the genetic diversity of wheat in Australia, 1973-1993. *Australian Journal of Agricultural Research* 49: 175-178.
- Brothers N P, Reid T A & Gales R P (1997) At-sea distribution of shy albatrosses *Diomedea cauta cauta* derived from records of band recoveries and colour-marked birds. *Emu* 97: 231-239.
- Burke C M & Knott B (1997) Homeostatic interactions between the benthic microbial communities and the waters of a hypersaline lake, Lake Hayward, Western Australia. *Marine & Freshwater Research* 48: 623-631.
- Cambridge M L & Hocking P J (1997) Annual primary production and nutrient dynamics of the seagrasses *Posidonia sinuosa* and *Posidonia australis* in south-western Australia. *Aquatic Botany* 59: 277-295.
- Carnegie A J, Keane P J & Podger F D (1997) The impact of three species of *Mycosphaerella* newly recorded on *Eucalyptus* in Western Australia. *Australasian Plant Pathology* 26: 71-77.
- Clarke C J, Mauger G W, Bell R W & Hobbs R J (1998) Computer modelling of the effect of revegetation strategies on salinity in the western wheatbelt of Western Australia - 1 - the impact of revegetation strategies. *Australian Journal of Soil Research* 36: 109-129.
- Colman J G (1997) A review of the biology and ecology of the whale shark. *Journal of Fish Biology* 51: 1219-1234.
- Corrigan V K, Hurst P L & Boulton G (1997) Sensory characteristics and consumer acceptability of pink lady and other late-season apple cultivars. *New Zealand Journal of Crop & Horticultural Science* 25: 375-383.
- Cotter K L (1997) Neoproterozoic microfossils from the Officer Basin, Western Australia. *Alcheringa* 21: 247-270.
- Cowling W A, Sweetingham M W, Diepeveen D & Cullis B R (1997) Heritability of resistance to brown spot and root rot of narrow-leaved lupins caused by *Pleiochaeta setosa* (Kirchn.) Hughes in field experiments. *Plant Breeding* 116: 341-345.
- Crisp M D & Chandler G T (1997) Contributions towards a revision of *Daviesia* (Fabaceae, Mirbelieae). 5. *D. cardiophylla* sens lat. *Australian Systematic Botany* 10: 321-329.
- Davis D, Banks S, Birtles A, Valentine P & Cuthill M (1997) Whale sharks in Ningaloo Marine Park - managing tourism in an Australian marine protected area. *Tourism Management* 18: 259-271.
- Day D A, Collins B G & Rees R G (1997) Reproductive biology of the rare and endangered *Banksia brownii* Baxter ex R. Br. (Proteaceae). *Australian Journal of Ecology* 22: 307-315.
- Depiazzi L J, Roberts W D, Hawkins C D, Palmer M A, Pitman D R, McQuade N C, Jelinek P D, Devereux D J & Rippon R J (1998) Severity and persistence of footrot in merino sheep experimentally infected with a protease thermostable strain of *Dichelobacter nodosus* at five sites. *Australian Veterinary Journal* 76: 32-38.
- Dortch C E (1997) New perceptions of the chronology and development of aboriginal fishing in south-Western Australia. *World Archaeology* 29: 15-35.

- Driscoll D A & Roberts J D (1997) Impact of fuel-reduction burning on the frog *Geocrinia lutea* in southwest Western Australia. *Australian Journal of Ecology* 22: 334-339.
- Dsouza N K, Webster J L & Tay F C S (1997) *Phytophthora boehmeriae* isolated for the first time in Western Australia. *Australasian Plant Pathology* 26: 204.
- Duffy B K, Ownley B H & Weller D M (1997) Soil chemical and physical properties associated with suppression of take-all of wheat by *Trichoderma koningii*. *Phytopathology* 87: 1118-1124.
- Edmonds J S, Shibata Y, Prince R I T, Preen A R & Morita M (1997) Elemental composition of a tusk of a dugong, *Dugong dugon*, from Exmouth, Western Australia. *Marine Biology* 129: 203-214.
- Eldridge M D B & Pearson D J (1997) Chromosomal rearrangements in rock wallabies, *Petrogale* (Marsupialia, Macropodidae). 9. Further g-banding studies of the *Petrogale lateralis* complex - *P. lateralis pearsoni*, the West Kimberley race, and a population heterozygous for a centric fusion. *Genome* 40: 84-90.
- Eltarabily K A, Hardy G E S J & Sivasithamparam K (1997) Effects of host age on development of cavity spot disease of carrots caused by *Pythium coloratum* in Western Australia. *Australian Journal of Botany* 45: 727-734.
- Eschmeyer W N (1997) A new species of Dactylopteridae (Pisces) from the Philippines and Australia, with a brief synopsis of the family. *Bulletin of Marine Science* 60: 727-738.
- Feizabadi M M, Robertson I D, Hope A, Cousins D V & Hampson D J (1997) Differentiation of Australian isolates of *Mycobacterium paratuberculosis* using pulsed field gel electrophoresis. *Australian Veterinary Journal* 75: 887-889.
- Field L H & Bailey W J (1997) Sound production in primitive Orthoptera from Western Australia - sounds used in defence and social communication in *Ametrus* sp. and *Hadrogryllacris* sp. (Gryllacrididae, Orthoptera). *Journal of Natural History* 31: 1127-1141.
- Fisher K (1997) Irradiation effects in air and in nitrogen on mediterranean fruit fly (Diptera, Tephritidae) pupae in Western Australia. *Journal of Economic Entomology* 90: 1609-1614.
- Fortin D & Arnold G W (1997) The influence of road verges on the use of nearby small shrubland remnants by birds in the central wheatbelt of Western Australia. *Wildlife Research* 24: 679-689.
- Gaughan D J & Fletcher W J (1997) Effects of the Leeuwin Current on the distribution of carnivorous macrozooplankton in the shelf waters off southern Western Australia. *Estuarine Coastal & Shelf Science* 45: 89-97.
- Glover E A & Taylor J D (1997) New species and records of *Rastafaria* and *Megaxinus* (Bivalvia, Lucinidae) from the western Indian Ocean and Red Sea, with a reappraisal of *Megaxinus*. *Journal of Conchology* 36: 1-18.
- Gregory P J (1998) Alternative crops for duplex soils - growth and water use of some cereal, legume, and oilseed crops, and pastures. *Australian Journal of Agricultural Research* 49: 21-32.
- Grocke D R, Bocherens H & Mariotti A (1997) Annual rainfall and nitrogen-isotope correlation in macropod collagen - application as a palaeoprecipitation indicator. *Earth & Planetary Science Letters* 153: 279-285.
- Haig D W, Smith M & Apthorpe M C (1997) Middle Eocene Foraminifera from the Type Giralia calcarenite, Gascoyne Platform, Southern Carnarvon Basin, Western Australia. *Alcheringa* 21: 229-245.
- Hamilton N T M & Collins L B (1998) Placer formation in a Holocene barrier system, southwestern Australia. *Journal of Coastal Research* 14: 240-255.
- Henderson T A & Wrigley C W (1997) Improved identification of oat varieties by acidic electrophoresis in ready-to-use gels. *Plant Varieties & Seeds* 10: 113-120.
- Hine P M & Thorne T (1998) *Haplosporidium* sp. (Haplosporidia) in hatchery-reared pearl oysters, *Pinctada maxima* (Jameson, 1901), in north Western Australia. *Journal of Invertebrate Pathology* 71: 48-52.
- Hosken D J (1997) Reproduction and the female reproductive cycle of *Nyctophilus geoffroyi* and *N. major* (Chiroptera, Vespertilionidae) from south-western Australia. *Australian Journal of Zoology* 45: 489-504.
- Hosken D J (1997) Thermal biology and metabolism of the greater long-eared bat, *Nyctophilus major* (Chiroptera, Vespertilionidae). *Australian Journal of Zoology* 45: 145-156.
- Hyndes G A & Potter I C (1997) Age, growth and reproduction of *Sillago schomburgkii* in south-western Australian, nearshore waters and comparisons of life history styles of a suite of *Sillago* species. *Environmental Biology of Fishes* 49: 435-447.
- Imgrund J, Groth D & Wetherall J (1997) Genetic analysis of the freshwater crayfish *Cherax tenuimanus*. *Electrophoresis* 18: 1660-1665.
- Jones R A C & Coutts B A (1996) Alfalfa mosaic and cucumber mosaic virus infection in chickpea and lentil - incidence and seed transmission. *Annals of Applied Biology* 129: 491-506.
- Jovetast S (1997) A proliferous *Riccia* from Australia - *Riccia pullulans* sp nov (subgenus *Ricciella*). *Cryptogamie Bryologie Lichenologie* 18: 183-189.
- Kendrick G A & Brearley A (1997) Influence of *Sargassum* spp. attached to rhodoliths on sampling effort and demographic analyses of *Sargassum* spp. (Sargassaceae, Phaeophyta) attached to a reef. *Botanica Marina* 40: 517-521.
- Kennington W J & James S H (1997) Contrasting patterns of clonality in two closely related mallee species from Western Australia, *Eucalyptus argutifolia* and *E. obtusiflora* (Myrtaceae). *Australian Journal of Botany* 45: 679-689.
- Kookana R S, Phang C & Aylmore L A G (1997) Transformation and degradation of fenamiphos nematicide and its metabolites in soils. *Australian Journal of Soil Research* 35: 753-761.
- Koslow J A, Williams A & Paxton J R (1997) How many demersal fish species in the deep sea - a test of a method to extrapolate from local to global diversity. *Biodiversity & Conservation* 6: 1523-1532.
- Loi A, Cocks P S, Howieson J G & Carr S J (1997) Morphological characterization of Mediterranean populations of *Biserrula pelecinus* l. *Plant Breeding* 116: 171-176.
- Loss S P & Siddique K H M (1997) Adaptation of faba bean (*Vicia faba* L) to dryland Mediterranean-type environments. 1. Seed yield and yield components. *Field Crops Research* 52: 17-28.
- Mable B K & Roberts J D (1997) Mitochondrial DNA evolution of tetraploids in the genus *Neobatrachus* (Anura, Myobatrachidae). *Copeia* 680-689.
- Maguire T L & Sedgley M (1997) Genetic diversity in *Banksia* and *Dryandra* (Proteaceae) with emphasis on *Banksia cuneata*, a rare and endangered species. *Heredity* 79: 394-401.
- Maly E J & Maly M P (1997) Predation, competition, and co-occurrences of *Boeckella* and *calamoecia* (Copepoda, Calanoida) in Western Australia. *Hydrobiologia* 354: 41-50.



- Maly E J, Halse S A & Maly M P (1997) Distribution and incidence patterns of *Boeckella*, *Calamoecia*, and *Hemiboeckella* (Copepoda, Calanoida) in Western Australia. *Marine & Freshwater Research* 48: 615-621.
- Marshall J K, Morgan A L, Akilan K, Farrell R C C & Bell D T (1997) Water uptake by two river red gum (*Eucalyptus camaldulensis*) clones in a discharge site plantation in the Western Australian wheatbelt. *Journal of Hydrology* 200: 136-148.
- McCarthy M A (1998) Identifying declining and threatened species with museum data. *Biological Conservation* 83: 9-17.
- McKenzie L M & Cooper D W (1997) Hybridization between tammar wallaby (*Macropus eugenii*) populations from Western and South Australia. *Journal of Heredity* 88: 398-400.
- McKeon T, Dunsmore J & Raidal S R (1997) *Trichomonas gallinae* in budgerigars and columbid birds in Perth, Western Australia. *Australian Veterinary Journal* 75: 652-655.
- McPharlin I R & Robertson W J (1997) Response of spring-planted lettuce (*Lactuca sativa* L.) to freshly-applied and residual phosphorus and to phosphate fertiliser placement on a Karrakatta sand. *Australian Journal of Experimental Agriculture* 37: 701-708.
- Meinke H & Ryley M (1997) Effects of sorghum ergot on grain sorghum production - a preliminary climatic analysis. *Australian Journal of Agricultural Research* 48: 1241-1247.
- Melvillesmith R & Chubb C F (1997) Comparison of dorsal and ventral tag retention in western rock lobsters, *Panulirus cygnus* (George). *Marine & Freshwater Research* 48: 577-580.
- Meney K A, Dixon K W & Pate J S (1997) Reproductive potential of obligate seeder and resprouter herbaceous perennial monocots (Restionaceae, Anarthriaceae, Ecdiaceae) from south-western Western Australia. *Australian Journal of Botany* 45: 771-782.
- Milberg P & Lamont B B (1997) Seed/cotyledon size and nutrient content play a major role in early performance of species on nutrient-poor soils. *New Phytologist* 137: 665-672.
- Moritz C, Heideman A, Geffen E & McRae P (1997) Genetic population structure of the greater bilby *Macrotis lagotis*, a marsupial in decline. *Molecular Ecology* 6: 925-936.
- Mundy B C & Moser H G (1997) Development of early stages of pelagic armorhead *Pseudopentaceros wheeleri* with notes on juvenile *Ps. richardsoni* and larval *Histiogaster typus* (Pisces, Percoidae, Pentaceroideae). *Bulletin of Marine Science* 61: 241-269.
- Mwanamwenge J, Siddique K H M & Sedgley R H (1997) Canopy development and light absorption of grain legume species in a short season mediterranean-type environment. *Journal of Agronomy & Crop Science-Zeitschrift für Acker und Pflanzenbau* 179: 1-7.
- Newell G R (1997) The abundance of ground-dwelling invertebrates in a Victorian forest affected by dieback (*Phytophthora cinnamomi*) disease. *Australian Journal of Ecology* 22: 206-217.
- Newman L J & Cannon L R G (1997) Nine new species of *Pseudobiceros* (Platyhelminthes, Polycladida) from the Indo-Pacific. *Raffles Bulletin of Zoology* 45: 341-368.
- Okada H & Wells P (1997) Late Quaternary nannofossil indicators of climate change in two deep-sea cores associated with the Leeuwin Current off Western Australia. *Palaeogeography Palaeoclimatology Palaeoecology* 131: 413-432.
- Park R F (1997) Occurrence and identity of *Puccinia graminis* on wheat, barley, and grasses in Australia during summer-autumn 1992-93. *Australian Journal of Agricultural Research* 48: 999-1002.
- Parsons K E (1997) Role of dispersal ability in the phenotypic differentiation and plasticity of two marine gastropods. I. Shape. *Oecologia* 110: 461-471.
- Parsons K E (1998) The role of dispersal ability in the phenotypic differentiation and plasticity of two marine gastropods. II - Growth. *Journal of Experimental Marine Biology & Ecology* 221: 1-25.
- Pergent G, Pergentmartini C & Cambridge M (1997) Morphochronological variations in the genus *Posidonia*. *Marine & Freshwater Research* 48: 421-424.
- Petty S R, Poppi D P & Triglone T (1998) Effect of maize supplementation, seasonal temperature and humidity on the liveweight gain of steers grazing irrigated *Leucaena leucocephala digitaria eriantha* pastures in north-west Australia. *Journal of Agricultural Science* 130: 95-105.
- Phillips B F & Pearce A F (1997) Spiny lobster recruitment off Western Australia. *Bulletin of Marine Science* 61: 21-41.
- Phillips J A & Huisman J M (1998) *Dictyopteris serrata* (Dictyotales, Phaeophyceae) - a little known algal species newly recorded from Australia. *Botanica Marina* 41: 43-49.
- Pinder A M & Brinkhurst R O (1997) The family Capilloventridae (Annelida, Clitellata) in Australia with descriptions of two new species of *Capilloventer*. *Zoologica Scripta* 26: 255-265.
- Platell M E, Potter I C & Clarke K R (1998) Do the habitats, mouth morphology and diets of the mullids *Upeneichthys stotti* and *U. lineatus* in coastal waters of south-western Australia differ. *Journal of Fish Biology* 52: 398-418.
- Poidinger M, Roy S, Hall R A, Turley P J, Scherret J H, Lindsay M D, Broom A K & Mackenzie J S (1997) Genetic stability among temporally and geographically diverse isolates of barmah forest virus. *American Journal of Tropical Medicine & Hygiene* 57: 230-234.
- Postmaster A, Sivasithamparam K & Turner D W (1997) Enumeration and identity of microorganisms isolated from the surface of banana fruits at three developmental stages. *Scientia Horticulturae* 69: 189-197.
- Pouliquenyoung O (1997) Evolution of the system of protected areas in Western Australia. *Environmental Conservation* 24: 168-181.
- Preen A (1998) Marine protected areas and dugong conservation along Australia's Indian Ocean coast. *Environmental Management* 22: 173-181.
- Quilty P G, Shafik S, Jenkins C J & Keene J B (1997) An Early Cainozoic (Paleocene) foraminiferal fauna with fabiania from offshore eastern Australia. *Alcheringa* 21: 299-315.
- Reader M A, Dracup M & Atkins C A (1997) Transient high temperatures during seed growth in narrow-leaved lupin (*Lupinus angustifolius* L.). 2. Injurious high pod temperatures are likely in Western Australia. *Australian Journal of Agricultural Research* 48: 1179-1186.
- Recher H F (1997) Impact of wildfire on the avifauna of Kings Park, Perth, Western Australia. *Wildlife Research* 24: 745-761.
- Regan K L, Siddique K H M, Tennant D & Abrecht D G (1997) Grain yield and water use efficiency of early maturing wheat in low rainfall mediterranean environments. *Australian Journal of Agricultural Research* 48: 595-603.
- Richards J D & Short J (1998) Wedge-tailed eagle *Aquila audax* predation on endangered mammals and rabbits at Shark Bay, Western Australia. *Emu* 98: 23-31.
- Riley I T, Reardon T B & Bertozzi T (1998) Allozyme analysis of Australian isolates of *Dilophospora alopecuri*. *Mycological Research* 102: 301-307.

- Roberts J D (1997) Geographic variation in calls of males and determination of species boundaries in tetraploid frogs of the Australian genus *Neobatrachus* (Myobatrachidae). *Australian Journal of Zoology* 45: 95-112.
- Robinson B H, Chiarucci A, Brooks R R, Petit D, Kirkman J H, Gregg P E H & Dedominicis V (1997) The nickel hyperaccumulator plant *Alyssum bertolonii* as a potential agent for phytoremediation and phytomining of nickel. *Journal of Geochemical Exploration* 59: 75-86.
- Roche S, Koch J M & Dixon K W (1997) Smoke enhanced seed germination for mine rehabilitation in the southwest of Western Australia. *Restoration Ecology* 5: 191-203.
- Rossetto M, Lucarotti F, Hopper S D & Dixon K W (1997) DNA fingerprinting of *Eucalyptus graniticola* - a critically endangered relict species or a rare hybrid. *Heredity* 79: 310-318.
- Savini G, Robertson I D & Dunsmore J D (1997) Sensitivities and specificities of two elisa tests for detecting infection with sarcocystis in cattle of Western Australia. *Preventive Veterinary Medicine* 32: 35-40.
- Shearer B L, Crane C E, Fairman R G & Grant M J (1997) Occurrence of *Armillaria luteobubalina* and pathogen-mediated changes in coastal dune vegetation of south-Western Australia. *Australian Journal of Botany* 45: 905-917.
- Shivas R G & Vanky K (1997) New smuts (Ustilaginales) on grasses from Western Australia. *Mycological Research* 101: 835-840.
- Shivas R G, Bathgate J & Podger F D (1998) *Colletotrichum xanthorrhoeae* sp. nov. on *Xanthorrhoea*. *Mycological Research* 102: 280-282.
- Shivas R G, Mitchell A A & Jubb T F (1997) *Corallocytophthora ornicoepreoides* sp nov, an unusual toxic fungus on *Astrebla* and *Dichanthium* in north-Western Australia. *Mycological Research* 101: 849-852.
- Short J, Turner B, Risbey D A & Carnamah R (1997) Control of feral cats for nature conservation - II - population reduction by poisoning. *Wildlife Research* 24: 703-714.
- Siverson M (1997) Sharks from the mid-Cretaceous Gearle siltstone, southern Carnarvon Basin, Western Australia. *Journal of Vertebrate Paleontology* 17: 453-465.
- Smith W K, Bell D T & Shepherd K A (1998) Associations between leaf structure, orientation, and sunlight exposure in five Western Australian communities. *American Journal of Botany* 85: 56-63.
- Smolker R, Richards A, Connor R, Mann J & Berggren P (1997) Sponge carrying by dolphins (*Delphinidae*, *Tursiops* sp.) - a foraging specialization involving tool use. *Ethology* 103: 454-465.
- Stephens D J & Lyons T J (1998) Rainfall-yield relationships across the Australian wheatbelt. *Australian Journal of Agricultural Research* 49: 211-223.
- Tennakoon K U, Pate J S & Arthur D (1997) Ecophysiological aspects of the woody root hemiparasite *Santalum acuminatum* (R Br) A Dc and its common hosts in south Western Australia. *Annals of Botany* 80: 245-256.
- Thomas C, Finn M, Twigg L, Deplazes P & Thompson R C A (1997) Microsporidia (*Encephalitozoon cuniculi*) in wild rabbits in Australia. *Australian Veterinary Journal* 75: 808-810.
- Thompson R B & Fillery I R P (1997) Transformation in soil and turnover to wheat of nitrogen from components of grazed pasture in the south of Western Australia. *Australian Journal of Agricultural Research* 48: 1033-1047.
- Thomson C J, Ewing M A, Turner N C, Revell C K & Lecoultre I F (1998) Influence of rotation and time of germinating rains on the productivity and composition of annual pastures in Western Australia. *Australian Journal of Agricultural Research* 49: 225-232.
- Tong S M (1997) Heterotrophic flagellates from the water column in Shark Bay, Western Australia. *Marine Biology* 128: 517-536.
- Watson I W, Westoby M & Holm A M (1997) Continuous and episodic components of demographic change in arid zone shrubs - models of two *Eremophila* species from Western Australia compared with published data on other species. *Journal of Ecology* 85: 833-846.
- Watson I W, Westoby M & Holm A M (1997) Demography of two shrub species from an arid grazed ecosystem in Western Australia 1983-93. *Journal of Ecology* 85: 815-832.
- Weaver D M & Reed A E G (1998) Patterns of nutrient status and fertiliser practice on soils of the south coast of Western Australia. *Agriculture Ecosystems & Environment* 67: 37-53.
- Williams M R & Faunt K (1997) Factors affecting the abundance of hollows in logs in jarrah forest of south-Western Australia. *Forest Ecology & Management* 95: 153-160.
- Williams S T & Benzie J A H (1997) Indo-West Pacific patterns of genetic differentiation in the high-dispersal starfish *Linckia laevigata*. *Molecular Ecology* 6: 559-573.
- Williams S T & Benzie J A H (1998) Evidence of a biogeographic break between populations of a high dispersal starfish - congruent regions within the Indo-West Pacific defined by color morphs, mtDNA, and allozyme data. *Evolution* 52: 87-99.
- Won M Z (1997) Review of family Entactiniidae (Radiolaria), and taxonomy and morphology of Entactiniidae in the Late Devonian (Frasnian) Gogo Formation, Australia. *Micropaleontology* 43: 333-369.
- Won M Z (1997) The proposed new radiolarian subfamily Retentactiniinae (Entactiniidae) from the Late Devonian (Frasnian) Gogo Formation, Australia. *Micropaleontology* 43: 371-418.
- Wooller S J & Wooller R D (1997) Overwintering by clamorous reed-warblers *Acrocephalus stentoreus* in Perth, Western Australia. *Emu* 97: 332-334.
- Wright I J & Ladiges P Y (1997) Geographic variation in *Eucalyptus diversifolia* (Myrtaceae) and the recognition of new subspecies *E. diversifolia* subsp. *hesperia* and *E. diversifolia* subsp. *megacarpa*. *Australian Systematic Botany* 10: 651-680.
- Young G C, Potter I C, Hyndes G A & Delestang S (1997) The ichthyofauna of an intermittently open estuary - implications of bar breaching and low salinities on faunal composition. *Estuarine Coastal & Shelf Science* 45: 53-68.

## Physical Sciences

- Arnold T N & Oldham C E (1997) Trace-element contamination of a shallow wetland in Western Australia. *Marine & Freshwater Research* 48: 531-539.
- Duffy B K, Ownley B H & Weller D M (1997) Soil chemical and physical properties associated with suppression of take-all of wheat by *Trichoderma koningii*. *Phytopathology* 87: 1118-1124.
- Edmonds J S, Shibata Y, Prince R I T, Preen A R & Morita M (1997) Elemental composition of a tusk of a dugong, *Dugong dugon*, from Exmouth, Western Australia. *Marine Biology* 129: 203-214.
- Feizabadi M M, Robertson I D, Hope A, Cousins D V & Hampson D J (1997) Differentiation of Australian isolates of mycobacterium *Paratuberculosis* using pulsed field gel electrophoresis. *Australian Veterinary Journal* 75: 887-889.



Mernagh T P & Hoatson D M (1997) Raman spectroscopic study of pyroxene structures from the Munni Munni layered intrusion, Western Australia. *Journal of Raman Spectroscopy* 28: 647-658.

Sylvester P J & Ghaderi M (1997) Trace element analysis of scheelite by excimer laser ablation inductively coupled plasma mass spectrometry (ela-icp-ms) using a synthetic silicate glass standard. *Chemical Geology* 141: 49-65.

---

*Note from the Hon Editor:* This column helps to link the various disciplines and inform others of the broad spectrum of achievements of WA scientists (or others writing about WA). References are abstracted from current Contents by searching for Western Australia in the title and abstract.

Other contributions to "Recent Advances in Science in Western Australia" are welcome, and may include papers that have caught your attention or that you believe may interest other scientists in Western Australia and abroad. They are usually papers in refereed journals, or books, chapters and reviews. Abstracts from conference proceedings will not be accepted.

Please submit either a reprint or photocopy of the paper to the Hon Editor or a member of the Publications Committee:

Dr P C Withers (Hon Editor), Department of Zoology, University of Western Australia, Nedlands WA 6907

Dr S D Hopper (Life Sciences), Kings Park and Botanic Garden, West Perth WA 6004

Dr A E Cockbain (Earth Sciences), PO Box 8114, Angelo Street, South Perth WA 6151

Assoc Prof G Hefter (Physical Sciences), Mathematical and Physical Sciences, Murdoch University, Murdoch WA 6150

"Letters to the Editor" concerning scientific issues of relevance to this journal are also published, at the discretion of the Hon Editor. Please submit a word processing disk with letters, and suggest potential reviewers or respondents to your letter.

P C Withers, *Honorary Editor, Journal of the Royal Society of Western Australia.*

c/o Western Australian Museum, Francis Street, Perth WA 6000